

## Conference Abstract

# How do you Develop a Data Standard? Wikibase might be the Solution...

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## Abstract

Data standards allow us to aggregate, compare, compute and communicate data from a wide variety of origins. However, for historical reasons, data are most likely to be stored in many different formats and conform to different models. Every data set might contain a huge amount of information, but it becomes tremendously difficult to compare them without a common way to represent the data. That is when standards development jumps in.

Developing a standard is a formidable process, often involving many stakeholders. Typically the initial blueprint of a standard is created by a limited number of people who have a clear view of their use cases. However, as development continues, additional stakeholders participate in the process. As a result, conflicting opinions and interests will influence the development of the standard. Compromises need to be made and the standard might look very different from the initial concept.

In order to address the needs of the community, a high level of engagement in the development process is encouraged. However, this does not necessarily increase the usability of the standard. To mitigate this, there is a need to test the standard during the early stages of development. In order to facilitate this, we explored the use of Wikibase to create an initial implementation of the standard.

Wikibase is the underlying technology that drives Wikidata. The software is open-source and can be customized for creating collaborative knowledge bases. In addition to containing an RDF (Resource Description Framework) triple store under the hood, it provides users with an easy-to-use graphical user interface (see Fig. 1). This facilitates the use of an implementation of a standard by non-technical users. The Wikibase remains fully flexible in the way data are represented and no data model is enforced. This allows users to map their data onto the standard without any restrictions. Retrieving information from RDF data can be done through the SPARQL query language (W3C 2020). The software package has also a built-in SPARQL endpoint, allowing users to extract the relevant information:

The screenshot shows the Wikibase interface for the 'Meise Botanic Garden Herbarium' item (Q123). The top navigation bar includes 'Biodiversity Information Standards' and 'Item | Discuss'. The main content area is titled 'Meise Botanic Garden Herbarium (Q123)' and describes it as a 'Herbarium collection of Meise Botanic Garden'. Below this, there are sections for 'Statements' and 'Properties'. The 'Statements' section lists various RDF triples with their types and values, such as 'rdfs:type' (Collection), 'dc:description' (Herbarium collection of Meise Botanic Garden), 'dc:created' (15 May 2020), 'dc:creator' (Marion Trekels), 'dc:rightsHolder' (Agentschap Planten en Meise), 'dc:license' (https://creativecommons.org/licenses/by-sa/3.0), 'cd:onlineResources' (http://www.botanicalcollections.be), 'cd:hasInstitution' (Agentschap Planten en Meise), and 'cd:hasSpecimenIdentifierSystem' (BR identifier system). The 'Properties' section on the left lists terms like 'Main page', 'Recent changes', 'Special pages', 'Permanent link', 'Page information', 'Citable links', 'All other languages', 'Wikidata', 'New item', 'New Property', 'New Schema', 'Open Data Service', 'Credits', and 'Quick Statements'.

**Figure 1.**

A screenshot of the description of an herbarium from the test instance of the Wikibase.

- Does the standard cover all use cases envisioned?
- Are parts of the standard underdeveloped?
- Are the controlled vocabularies sufficient to describe the data?

This strategy was applied during the development of the TDWG Collection Description standard. After completing a rough version of the standard, the different terms that were defined in the first version were transferred to a Wikibase instance running on WBStack (Addshore 2020). Initially, collection data were entered manually, which revealed several issues. The Wikibase allowed us to easily define controlled vocabularies and expand them as needed. The feedback reported from users then flowed back to the further development of the standard. Currently we envisage creating automated scripts that will import data en masse from collections. Using the SPARQL query interface, it will then be straightforward to ensure that data can be extracted from the Wikibase to support the envisaged use cases.

## **Keywords**

TDWG, collections description, data standard, standard development

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